Model Development Phase Template

Date	26th June 2024
Team ID	LTVIP2025TMID42853
Project Title	Revolutionizing Liver Care: Predicting Liver Cirrhosis Using Advanced Machine Learning Techniques.
Maximum Marks	5 Marks

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Feature Selection Report Template

In the forthcoming update, each feature will be accompanied by a brief description. Users will indicate whether it's selected or not, providing reasoning for their decision. This process will streamline decision-making and enhance transparency in feature selection.

Feature	Description	Selected (Yes/No)	Reasoning
Age	Age of the patient	Yes	Age can be a significant factor in the likelihood of developing liver cirrhosis.
Gender	Gender of the patient	Yes	Gender may influence medical conditions and treatment responses, including liver diseases.
Place	Location where the patient lives	Yes	Can help to know about the distribution of people.
Duration of alcohol consumption (years)	Years of alcohol consumption	Yes	Long-term alcohol consumption is a major risk factor for liver cirrhosis.

Quantity of alcohol consumption (quarters/day)	Daily alcohol consumption quantity	Yes	Quantity of alcohol consumed is directly related to liver health.
Type of alcohol consumed	Type of alcohol consumed	Yes	Different types of alcohol may have varying effects on liver health.
Hepatitis B infection	Presence of Hepatitis B infection	No	Hepatitis B infection is not the primary focus of this study.
Hepatitis C infection	Presence of Hepatitis C infection	No	Hepatitis C infection is not the primary focus of this study.
Diabetes Result	Presence of diabetes	No	Diabetes results are not the primary focus of this study. We will check it with a prediction.
Blood pressure (mmhg)	Blood pressure measurement	Yes	High blood pressure can be an indicator of overall health and impact liver function.
Obesity	Obesity status	Yes	Obesity is a known risk factor for liver disease.
Family history of cirrhosis/ hereditary	Family history of cirrhosis or hereditary factors	Yes	Genetic predisposition can significantly impact the risk of liver cirrhosis.
TCH	Total Cholesterol	No	TCH is not the primary focus of this study.
TG	Triglycerides	No	TG is not the primary focus of this study.
LDL	Low-Density Lipoprotein	No	LDL is not the primary focus of this study.

HDL	High-Density Lipoprotein	No	HDL is not the primary focus of this study.
Hemoglobin (g/dl)	Hemoglobin level in the blood	Yes	Hemoglobin levels can reflect overall health and indirectly impact liver health.
PCV (%)	Packed Cell Volume percentage	Yes	PCV levels provide information on the volume percentage of red blood cells in the blood.
RBC (million cells/microliter)	Red Blood Cell count	Yes	RBC count can indicate overall health status.
MCV (femtoliters/cell)	Mean Corpuscular Volume	Yes	MCV levels provide information on the size of red blood cells.
MCH (picograms/cell)	Mean Corpuscular Hemoglobin	Yes	MCH levels provide information on the amount of hemoglobin per red blood cell.
MCHC (grams/deciliter)	Mean Corpuscular Hemoglobin Concentration	Yes	MCHC levels provide information on the concentration of hemoglobin in red blood cells.
Total Count	Total White Blood Cell Count	Yes	Elevated white blood cell count can indicate inflammation or infection affecting the liver.
Polymorphs (%)	Percentage of polymorphonuclear cells	Yes	High levels of polymorphs can indicate infection or inflammation.
Lymphocytes (%)	Percentage of lymphocytes	Yes	Lymphocyte levels can indicate immune response.

Monocytes (%)	Percentage of monocytes	Yes	Monocyte levels can indicate chronic inflammation or infection.
Eosinophils (%)	Percentage of eosinophils	Yes	Elevated eosinophils can indicate allergic reactions or parasitic infections affecting the liver.
Basophils (%)	Percentage of basophils	Yes	Basophil levels can indicate immune response or inflammation.
Platelet Count (lakhs/mm)	Platelet count in the blood	Yes	Platelet count can indicate liver function, as the liver produces clotting factors.
Total Bilirubin (mg/dl)	Total bilirubin level in the blood	No	Total Bilirubin is not the primary focus of this study.
Direct (mg/dl)	Direct bilirubin level in the blood	Yes	Direct bilirubin levels provide specific insights into liver function.
Indirect (mg/dl)	Indirect bilirubin level in the blood	Yes	Indirect bilirubin levels can help identify liver function abnormalities.
Total Protein (g/dl)	Total protein level in the blood	Yes	Protein levels can reflect overall liver function.
Albumin (g/dl)	Albumin level in the blood	Yes	Low albumin levels are a common indicator of liver cirrhosis.
Globulin (g/dl)	Globulin level in the blood	Yes	Globulin levels provide additional information on liver function.
A/G Ratio	Albumin to Globulin Ratio	No	A/G Ratio is not the primary focus of this study.

AL.Phosphatase (U/L)	Alkaline Phosphatase level in the blood	Yes	Elevated levels can indicate liver disease or bile duct obstruction.
SGOT/AST (U/L)	Aspartate Aminotransferase level in the blood	Yes	An important marker for liver health, high levels suggest liver damage.
SGPT/ALT (U/L)	Alanine Aminotransferase level in the blood	Yes	High levels may signal liver damage or inflammation.
USG Abdomen	Ultrasound of the abdomen indicating diffuse liver or not	Yes	Ultrasound results can provide direct evidence of liver abnormalities.
Outcome	Predicted value (whether the patient is suffering from liver cirrhosis or not)	Yes	The target variable for predictive modeling – essential for the project's goal.